

CLAIMS:

Claim 1: A secure memory device for a smart card with a modem interface comprising:

- a rewritable memory such as an EEPROM,
- 5 – a processing unit or a microprocessor,
- an on-chip oscillator,
- an ISO 7816 interface,
- a one-wire modem interface,

and characterized in that both communication interfaces are bidirectional and share
10 the same I/O terminal.

Claim 2: A secure memory device as in claim 1, exchanging data with the host in the form of a modulated signal by means of a card reader characterized by the absence of processing means.

Claim 3: A secure memory device as in claim 2, wherein the ISO interface is
15 active when the reset input is high, and the modem interface is active when the reset input is low.

Claim 4: A secure memory device as in claim 3, transmitting a modulated answer to reset (MAR) to the host when the reset input is pulled down.

Claim 5: A secure memory device as in claim 4, transmitting the MAR only
20 once, when the card is inserted into the card reader.

Claim 6: A secure memory device as in claim 5, wherein the MAR comprises at least three fields: a header, a card number, and a random number.

Claim 7: A secure memory device as in claim 6, computing a new random number prior to transmit the MAR.

25 Claim 8: A secure memory device as in claim 3, transmitting data to and receiving data from a PC by means of a card reader plugged into the microphone input and the speaker output of the PC sound card.

Claim 9: A secure memory device as in claim 8, powered by the voltage provided by the microphone input of the sound card.

Claim 10: A secure memory device as in claim 3, transmitting data to and receiving data from an IVR server by means of a card reader plugged into the telephone line.

5 Claim 11: A secure memory device as in claim 10, powered by the voltage provided by the telephone line.

Claim 12: A secure memory device as in claim 3, transmitting data to and receiving data from a PC or an IVR server by means of a card reader equipped with a speaker/microphone transducer, converting the modulated signal into an audible sound and vice versa.

10 Claim 13: A secure memory device as in claim 12, powered by a battery cell within the card reader.

Claim 14: A secure memory device as in claim 3, wherein Vcc is connected to the ISO contact C1, Rst to C2, Clk to C3, Gnd to C5, and I/O to C7.